Hγ and the stronger lines of the group, it may arise from some optical or photographic cause."*

We now learn that this difference between two parts of the lines indicates probably a different condition of the nebula on the two sides of the star-spectra.

Other lines besides those described in this note are present, not only between G and F, but also on the more refrangible side of the strong line about λ 3725.

The importance of the new points which have come out from these photographs makes us regret that we must postpone a fuller examination and discussion of the spectrum of different parts of the nebula until its return next year.

"On a new Group of Lines in the Photographic Spectrum of Sirius." By WILLIAM HUGGINS, D.C.L., LL.D., F.R.S., and Mrs. HUGGINS. Received April 25,—Read June 12, 1890.

In 1879,† I gave an account of a series of broad lines in the photographic region of the spectrum which was found to be characteristic of Sirius, Vega, and other white stars, and which was identified as a continuation of the spectrum of hydrogen beyond H.‡ In the photographs of Sirius which I had taken up to that time, I was not able to be certain if the two most refrangible of the lines, θ and ι, were present. This uncertainty has been set at rest by photographs taken since, in which the complete series of the hydrogen lines, including θ and ι, come out with great distinctness.

I have long suspected the presence of another group of broad lines some distance further on in the ultra-violet region, but until this year we have not been able to see them in the photographs with sufficient distinctness to be able to make even roughly approximate measures of their positions.

On April 4th, a photograph of the spectrum of Sirius was taken with a long exposure, the slit being made very narrow, in the hope of bringing out this new group of lines with greater distinctness. This plate shows, on examination, that the spectrum of Sirius, after the termination of the hydrogen series, remains, as far as we can see at present, free from any strong lines until a position as far in the ultra-violet as about λ 3338 is reached, at which place appears the first of a group of at least six lines, all nearly as broad as those of the hydrogen series. The third line of the group about λ 3278 appears to be

* 'Roy. Soc. Proc.,' vol. 46, p. 54.

† 'Phil. Trans.,' 1880, p. 669.

‡ H. W. Vogel, 'Berlin. Akad. Monatsber.,' 1879, July 10; and Cornu, 'Journal de Physique,' 2nd ser., vol. 5, 1836, p. 100.

the broadest, but they are all broad, though even in this photograph they are not seen with the distinctness which is necessary for ascertaining accurately their relative character.

The sixth line occurs where the spectrum is faint, almost at the limit of this photograph, which was taken when Sirius was some distance past the meridian, and we are not able to find out whether this line completes the group, or whether there may not be other lines still more refrangible belonging to it. We expect to be able to determine this point, namely, whether the group ends with the sixth line, when the opportunity comes round of being able to photograph the star when it is near the meridian.

The new group of six lines is well seen when the photograph is examined with a lens, but when the plate is placed under the measuring microscope it is only with some difficulty that the lines can be observed with the distinctness which is necessary for measuring them with a fair approach to accuracy.

For this reason, the wave-lengths given below must be regarded as only preliminary, and but roughly approximate measures of the positions of the new lines.

1st Line.....	λ 3338
2nd „	λ 3311
3rd „	λ 3278
4th „	λ 3254
5th „	λ 3226
6th „	λ 3199

"On the Spectra of Comet *a* 1890 and the Nebula G.C. 4058." By J. Norman Lockyer, F.R.S. Received and Read June 12, 1890.

The comet discovered by Mr. Brooks on the 19th of March (*a*, 1890) has recently been observed at Kensington with the view of testing the sequence of spectra which resulted from my discussion of all the spectroscopic observations of comets which had been made up to the end of 1888.* The orbit, however, is such that the comet has only passed through a small range of temperature, and no changes have been observed in its spectrum beyond the gradually increasing brilliancy of the carbon bands relatively to the continuous spectrum. As I pointed out in the paper referred to, the citron band should be most variable, for the reason that the brightest flutings in the spectra of manganese and lead fall near it; but, although this band has been carefully observed on every occasion, it has retained the same wave-

* 'Roy. Soc. Proc.,' vol. 45, p. 189.